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Pathways

VOL XIII FEBRUARY 1991 No. 1

Questioning Strategies In The Classroom

Most students and teachers associate questions with tests and examinations which take place after a lesson is completed. These are, obviously, intended to check out the students' ability to recall the facts, describe events, apply the knowledge gained and perhaps express individual ideas. However questions are a powerful tool used regularly in the course of a lesson, by the effective teacher. A wide variety of questions helps the teacher to focus and extend classroom discussions about literature, social studies, science .. almost any subject taught in the classroom. Questions help to round off and produce a lesson that is closer to attaining its objectives. Some questions are derived directly from well-stated objectives; others may review portions dealt with earlier or seek to broaden the students' understanding of the current topic. They can be used to enhance the students' enjoyment and to allow them use of their listening, speaking and writing skills when responding critically and creatively.

The following are four broad categories of questions.

1. **Literal questions** ask students to recall specific information presented during the lesson. Good questions of this type do not ask for random facts. Instead they help students focus on what are the main points/events in the topic, their sequence, distinguish main ideas from details, analyse relevant portions to obtain infortion about characters and events. Though they are sometimes considered "low-level" thinking, answers to literal questions can help students remember, organize and assemble a "data bank" of information This data-bank can then help them respond to higher-level questions, to carry out activities related to the lesson—e.g. the dramatization of a story. With some studens, the literal level needs little reinforcement. With others, it is a necessary, though insufficient part of every lesson.

2. **Interpretive Questions** require students to respond by using their own experience and reasoning They help them develop skills beyond the level of recall. For example a poem about a winter day may present three explicit details; an interpretive question may then ask the reader to add three more details to be expected on a winter day. The author of a biography may discuss several important times in the subject's

life; an interpretive question may then ask the reader to predict what happened between these events, based on the evidence given but also going beyond this evidence. After reading a fiction selection, students may be asked to interpret the "world" described there and to compare or contrast it to their own world.

Avid readers apply interpretive thinking skills almost automatically as they read. Other readers do not. In either case, interpretive questions can focus interpretation, strengthening interaction between the topic and the reader's experience. Such questions often prepare the way for interpretive activities involving the visual arts, dramatization, oral and written composition, and related reading.

3. Critical Questions ask students to do something with the knowledge, to evaluate a work of literature, to apply it to a new situation, to solve a problem, to investigate a new area connected to the work, to analyze the style of the writer. A fantasy, for instance, may present a world in which the law of gravity is changed. Students may evaluate the fantasy: How consistently is this change presented in the fantasy? How would our world be different if the change occurred here? How desirable or undesirable would the change be? A biography, for instance, may tell how a famous person developed a skill despite difficult circumstances. Students may then be asked to devise another plan: What other ways might the person have used to develop the skill?

In a sense, literature provides children with "free experience." The children experience not only how certain story characters perceive their problems or goals but also how these characters use thinking skills to try to solve those problems or attain those goals. Critical questions are designed to help students analyze this goal seeking and problem solving; to investigate, evaluate, and often appreciate such endeavors; and finally, to weigh the pros and cons of applying the resulting information to their own thoughts and actions. Critical questions elicit and guide judgment.

4. Creative Questions ask students to go beyond the lesson, by extending what they have learnt to unique situations. Students are asked to transfer their understanding to new tasks. For example, after reading a fable, students are asked to analyze the characters' actions in relation to the fable's moral. Then, based on their analysis, students are asked to generate examples of times when they might need to use the moral to solve their own problems. In doing so, students connect the theme presented in a literary work to their own experiences.

Using Questions to Teach

The question types described in the preceding section are best used for teaching purposes, not for testing. Most questions can start a series of responses, and one question may lead to another without interrupting the main topic of discussion. The resulting pattern of discussion may not be question/answer, question/answer, as it is likely to be in testing. Instead the pattern for the discussion of a story may be the following: a question asking for clarification of a word or phrase leads to a question involving recall of the story events, which in turn leads to a question asking for an interpretation of a character's reaction to those events.

Try applying some of the following strategies during your classroom discussions:

1. Probing : A probe can be a request for additional information to clarify or elaborate on a response, or it can be a request for other answers. Such probing questions as "Do you have any other ideas?" or "Can you tell us more about that idea?" can develop a discussion without fragmenting it. Listen to a student's response and decide whether a probe is needed.

2. Requesting verification : Ask students to return to the text in order to verify a point. Students may be asked to substantiate opinions as well as locate bases for statements of fact.

At other times students may by called upon to use other sources, including their own experience, to verify a statement.

3. **Providing wait time :** The *wait-time, of think-time*, principle simply means that a time of silence comes between your question and a student's response. Research shows that classes using wait time have better discussions. Responses are longer, and students show higher-level thinking than when the wait-time principle is ignored.

To apply this strategy, you might begin by saying. "Now I'm going to ask you a thought-provoking question. Take time to think about it before you tell us what you think" Ask the question, and then allow several seconds to elapse before calling for a response. *After* hearing a response, wai' several seconds before commenting or asking for other responses. This needs careful planning and deliberate practice. Most teachers, even the most experienced, are in a hurry to get the correct answer. If they cannot elicit it fast enough from the students, they say if themselves !

4. **Modeling :** Recent research supports a teaehing strategy called *teacher n.odeling*, which means that you demonstrate for students your thought processes for working out the answer to a challenging question. For example, you may ask an interpret ve question about a scene from a play being studied Then you say, "This time, I'll being the answering " Step by step, you talk through the thought process you use in responding to the question. That process might include (1) looking back throu h the play to pinpoint some literal information (2) considering options and (3) coming to a conclusion. By describing your thought processes in this way, you have modeled the three steps in answering an interpretive question : (1) searching the literal-level "data bank" as a basis for the response; (2) considering alternative responses, rejecting some; and (3) deciding on what appears to be a good answer, and the examining it long enough to explore its value.

After you have modeled your response, discuss the modeling with students. Then pose another higher-level question and lead students through the procedure, returning to the modeling when necessary. On a subsequent question, you should observe whether students use the procedure indipendently. Finally, you can evaluate: Has modeling improved students' abilities to think and respond ?

Teaching Students to Generate Questions

In an active, meaning-centered classroom, students can be encouraged to participate in discussions by generating their own thought-provoking questions. For effective classroom discussion to occur, a climate must exist that promotes the free exchange of idies and the taking of risks. Students must feel free to say what they think, share new ideas, give opinions, and disagree with each other.

Student-centered discussion should be encouraged, even if the noise level in the class oom is elevated. The noise produced by effective discussion is productive and a clear sign that students are active and taking responsibility for their own learning.

However, most students need to be taught how to ask questions that require more than a recall of details or a *yes/no* response. Here are some strategies that may help you teach students how to ask thought provoking questions.

1. **Provide direct instruction in how to identify a thought-provoking question.** Begin by using the following charts to define the two types of questions : **thought questions and memory questions.** The charts list characteristics of both types of questions and provide key words and phrases that you can use to construct each type. You may create a bulletin-board display of the charts so that during discussion, students are reminded of these key words and phrases

2. **Have students identify thought and memory questions :** They may find in subject-

area textbooks. Ask students to verbalize the thought processes they use as they identify each question type You may need to model thought processes periodically

3. **Have students compile lists of thought questions** about a discussion topic. Then have students ask each other the questions. If one student cannot answer a question, another student should attempt it You may divide the class into groups to compile the lists of questions. If so, a member of one group should ask a member of a different group a question.

4. **Have students distinguish between memory and thought questions** After students study a topic have one student ask a group of class mates or the entire class questions about it After each question is answered, have students identify the type of question asked The student asking the questions should strive to ask as many thought questions as possible.

5. **Have students ask questions to preview and predict.** Before they read a new topic have students preview it and write thought questions for which they hope to find answers. After they read, ask students to discuss the answers to as many questions as possible. Students may work with a partner or with a group of classmates.

THOUGHT QUESTIONS

- **They ask for new ideas, new ways to use ideas or opinions.**
- **They may have many good answers.**
- **They have answers that come from your thought.**

Key Words and Phrases	*Examples*
What————?	Imagine the best friend you can have, **What** would he or she be like ?
What——if——?	**What** would the world be like **if** people had no friends?
How do you feel about ————?	**How do you feel about** you best friend ? Give reasons.
Can————?	**Can** a pet be a friend ? **Tell** why or why **not.**
How is———— different from————?	**How is** your friendship with your pet **different from** your friendship with your best friend ?
How is the same as————?	**How** is having a best friend **the same** as reading a good book ?
Why————?	**Why** is it important to have friends ?
In your opinion, ————?	**In your opinion**, what is the best quality a friend can have ?

MEMORY QUESTIONS

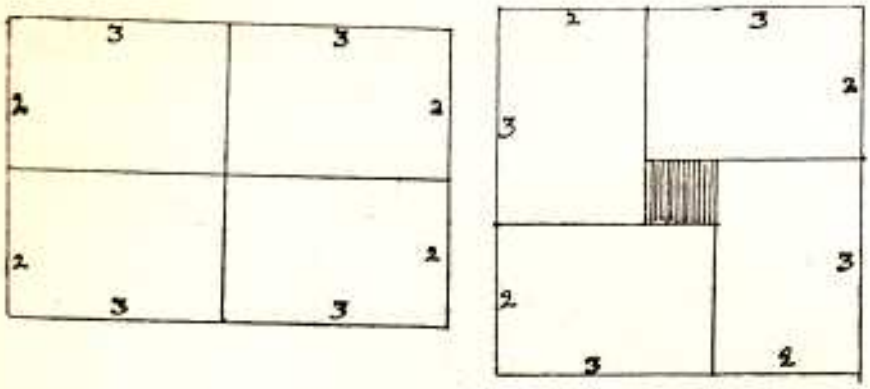
- **The ask for facts a·d details.**
- **They have only one correct answer.**
- **They have answers that ask you to recall information.**

Key Words and Phrases	*Examples*
Who ————?	**Who** are your friends ?
Which one———?	**Which one** have you **know** the longest ?
Where———?	**Where** did you meet your friend ?
When————?	**When** do you have the best times with your friend ?
How many ————?	**How many** friends do you have ?
What————?	**What** did your friend do yesterday ?

Readers might like to identify a series of similar questions in their own subjects before they try out this exercise in the classroom. As part of your preparation for your next class, why not plan a series of questions of varied types. Use them as you teach, use them to elicit information from your students, use them to get your students involved, use them to provoke discussion and controlled argument use them to train your students to remember facts, to link their learning with real-life experiences and use them to make your students **THINK**.

MATHS CLUB IDEAS–5

SQUARES FROM RECTANGLES



Have fun, dissecting rectangles. The 4×6 rectangle given above is dissected into four rectangles and fitted around a square to form a 5×5 square.

Find four other ways of breaking up the 4×6 rectangle, so that it is :

(i) dissected into 2 pieces which will, along with a unit square form a 5×5 square.

(ii) dissected into 4 pieces which will along with, the unit square, form a 5×5 square in different ways.

(Solutions on page 11)

Saroja Sundararajan
Madras

When the birds sing, do they call to the flowers in the fields, or are they speaking to the trees, or are they echoing the murmur of the brooks? For man his understanding cannot know what the bird is saying, nor what the brook is murmuring nor what the waves whisper, when they touch the beaches slowly and gently.

Man with his understanding cannot know what the rain is saying when it falls upon the leaves of the trees or when it taps or the winddo panes. He cannot know what the breeze is saying to the flowers in the fields.

But the heart of man can feel and grasp the meaning of these sounds that play upon his feelings. Eternal wisdom often speaks to him in a mysterious language. Soul and nature converse toggether, while man stands speechless and bewildered; yet has not man wept at the sounds and are not his tears eloquent understanding.

—KAHLIL GIBRAN

Simple Electricity Experiments for the Middle School

Ms. Krishna Venkat
Ms Sabita Raghunath
Sardar Patel Vidyalaya,
New Delhi

Teaching science in the middle school through activity has been a learning experience for us and our students. Students learn scientific skills through experimentation. Teaching through activity is challenging and more meaningful.

We tried a series of experiments in our Science Activity Centre based on simple concepts of electricity. Five different experiments were given to each of five groups of children. Each group had 7-8 students and had 30 minutes for their work. Two groups were able to finish three experiments inclusive of reporting. Two groups finished two experiments and one group got stuck with the first experiment.

Each group was given a sheet of paper with a circuit diagram, the materials required and questions related to it. This method encourages students to aak questions and find out answers themselves. We, as teachers, found ourselves facing questions which we would not normally have in a conventional science class.

The Skills Needed/Learnt

(i) To remove insulation without reducing the length of a wire. (They were given normal insulated wire).

(ii) Connecting wire and cell or two cells.
- —use of the finger tips only.
- —use of insulation tape and to be able to hold on to it.
- —connecting cells in parallel in various ways.

(iii) To be able to see how many wires (pieces) will be needed from the circuit diagram.

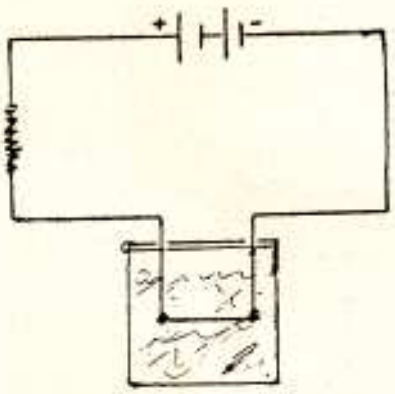
(iv) Connecting the right way-following the circuit diagram.

(v) Reading of a thermometer.

(vi) To be able to read with concentration, comprehend and follow instructions, thinking and problem-solving abilities.

A List of The Experiments Tried out

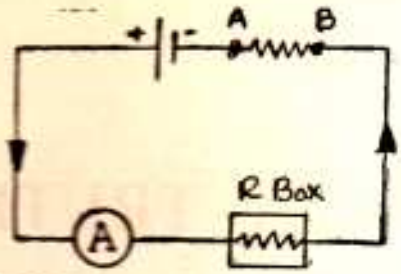
1 Connect as shown and write down your observations.



The initial response was, that nothing was happening. After consulting among themselves, they decided to us a thermometer to note the rise in temperature.

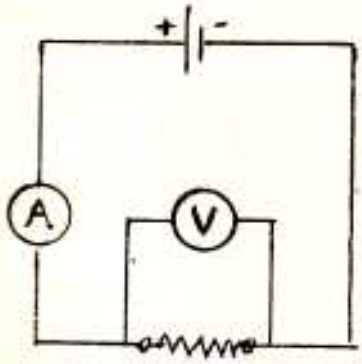
2. You are given a new blade, $CuSO_4$ solution, cells, connecting wire and a piece of copper wire. Draw the circuit diagram and copper-plate the blade. They could do this as they had learnt about copper plating in Std. VI. One group tried copper plating staples and it was more effective.

3. Connect as shown and answer the following questions.



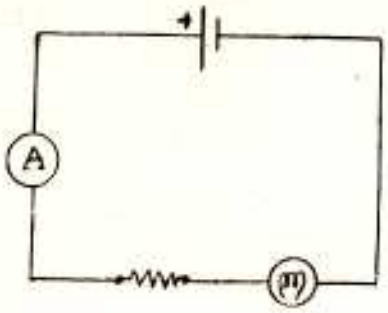
(i) What happens to the ammeter reading when wires made up of different materials are used between A and B and why ?
Some groups decided to change the length of the wires to see what happens.

4. Connect as shown and complete the given table



CELLS	V	A	V/A
1			
2			
3			

The experiment only worked when we used a resistance box with just 1 ohm resistance. 75% of the students did manage to get an almost constant ratio



5. (i) Which will burn brighten—when you use one bulb or two bulbs ?

(ii) Find out what happens to the ammeter reading

A chapter that would have required three half-hour teaching periods, required only two, apart from the two activity periods. The final outcome was a recapitulation period with the students contributing enthusiastically. The time spent in preparing the activities is rewarded by the better understanding of the topic, the practical skills acquired and the students' reactions—the twinkle in the eye, the "Ah !" when they felt the heat, the widening of the mouth as they saw the glow of the bulb.

The teacher is the key to activating experience with literature Teachers who themselves love literature are priceless models. They inspire interest and a search for meaning in the encounter with each new story, poem, play or work of non-fiction. They increase enjoyment and understanding through thoughtful questioning and purposeful activities – oral and written composition, interpretive reading and dramatization, music and the visual arts, and extensions of literary experiences related to the other content areas. Such teachers know that literature is a legacy to be given to children with love and experience.

MY EXPERIMENTS WITH TRUTH

Mrs. Bandana Choudhary
Ramjas School, Sector-IV
R. K. Puram, New Delhi-22

As techers tech we teach the lessons of our subjects according to the prescribed syllabus everyday. I think many of us have tried to take a subject out of the four walls of the class-room to make it more interesting and lively. We do take children out to show them certain specimens of plants and animals, some models and some exhibitions etc. but have we ever thought that we san ever inculcate certain values into them through our everday techings? Would like to share one such experience of mine.

I was teaching social studies in class IV in Ramjas School R. K. Puram New Delhi in November 1988. The lesson was on "India's Fight for Freedom" I think many of us are aware that our textbooks abound with certain terms which are above the level of children of that particular age group. This lesson was also full of such terms. I had explained terms like 'democracy', 'independence' by giving small day-to-day examples like selecting the monitor through voting in the class, by telling them interesting stories of independence and reading different books in the library. After half the lesson was over - the role of Mahatma Gandhi came into it. The book talked about Satya-graha, Ahimsa, truth, non-cooperation, Swadeshi and many more such terms came in. I found that small children hardly 8 yrs of age, could not grasp the essence of the words by my mere talking in the class.

As an excursion I planned a visit to the Gandhi Museum, after taking permission from my Principal who agreed readily. Before going to the museum, I had talked at length with the children about Gandhiji's life and they were overwhelmed with what they saw. Interaction with the children was not possible inside the museum as we were asked to maintain silence, besides being disturbed time and again by the general public, especially the rural people who came in large numbers to pay homage to Bapuji.

The next day I gave the children a worksheet to do in class. It had simple questions like : List and draw things Gandhiji used; Name two things Gandhiji was very fond of and so on. In the class, I happened to ask a few questions like what did you like best at the museum ? What is the thing you remember seeing which has touched you ?

The children gave general answers like seeing his *charkha*, his spectacles, utensils, his *lathi* etc. Suddenly one girl stood up to say "Madam I saw a saying which Gandhiji liked very much". I said, "O K., now tell the class about it". She said with a smiling face "Truth is God" Immediately another child, a boy, got up to say "Madam I too remember something. Madam there it was also written : have the courage to own your mistakes".

Hearing these I was overwhelmed with joy. What I could not teach through books and mere talk the children learnt and took to their hearts by mere looking. Thus in this way certain values can be reinforced in the children especially in this age of uncertainity, when the children are being brought up in an atmosphere of untruth, violence and disbelief. It is difficult to inculate the positive values which I am sure as teachers we would want every child to have. Children of today do not have a living Gandhi before them who can set an example. It is our foremost duty to take every opportunity to reinforce such values in them and the primary school is the right time for this. The immense joy this experience gave, made me try certain other experiments with children of various class levels which I shall share with you another time.

O-N-E T-W-O

Here is an interesting game with playing cards, for children of all age groups.

Take out one suite of thirteen cards ace two; three ..... - .....upto king. These are required to be arranged in a stack one above the other in such that as a child spells O—N—E, for each letter he/she takes the top card and transfers it to the bottom The fourth card should be '1'. This is to be removed from the stack and placed on the table. Then follows

T — W — O and 2
T — H — R — E — E and 3
and so on

While the younger children enjoy spelling the numbers, older ones become very curious to known how the cards are arranged.

I had a mixed group of ten children from middle school classes (VI to VIII). They were told to work in pairs and arrange the cards to get the desired result.

The first enquiry was—"Is it difficult ?"

The reply was, "No it is very simple", and that set them all of them working. Two of the groups did succeed - one of them in good time but each through trial and error. Others too, were not far from the goal.

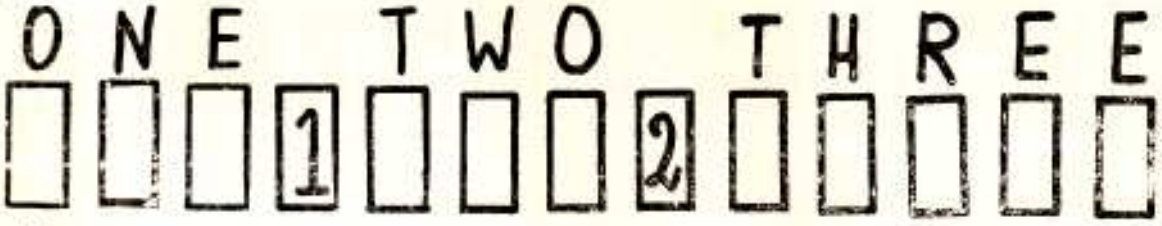
What was being sought now was a more systematic approach and all the ten wizards put their heads together.

This is how they proceeded - 'Ace' or '1', must come on the fourth place after a card for 'O', another for 'N' and the third for 'E'. After ace there have to be three more cards for the letters T — W — O, then '2' then again five more cards, followed by '3' and so on.

How does one know what goes in the first three places ? And after the '1' what comes in the next three places ? Again a lot of trials were made and guesses attempted. Then a bright idea emerged. An unknown quantity is 'X'; so put an 'X' in the places about which some uncertainity prevails. This in turn implied that there are thirteen blank spaces to be filled with exactly thirteen cards.

So thirteen cards were put face down to represent the thirteen blank spaces and the group proceeded to fill them with thirteen cards (right side up now) as follows—

Step I



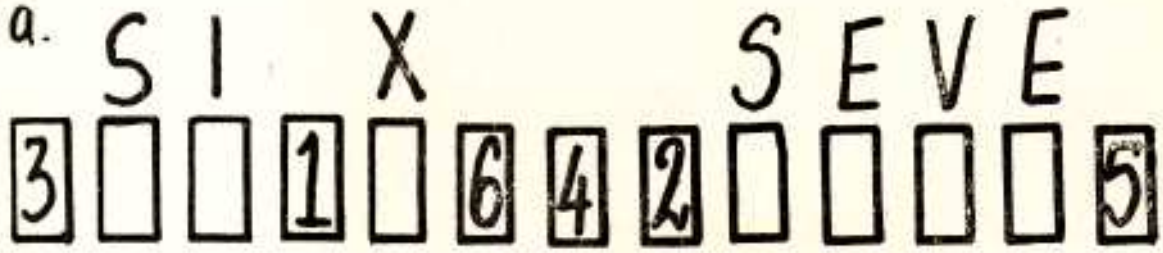
Step II

After we come to the last card in step I, we have the first card we started with coming up. So we fill it with '3' and proceed as before.

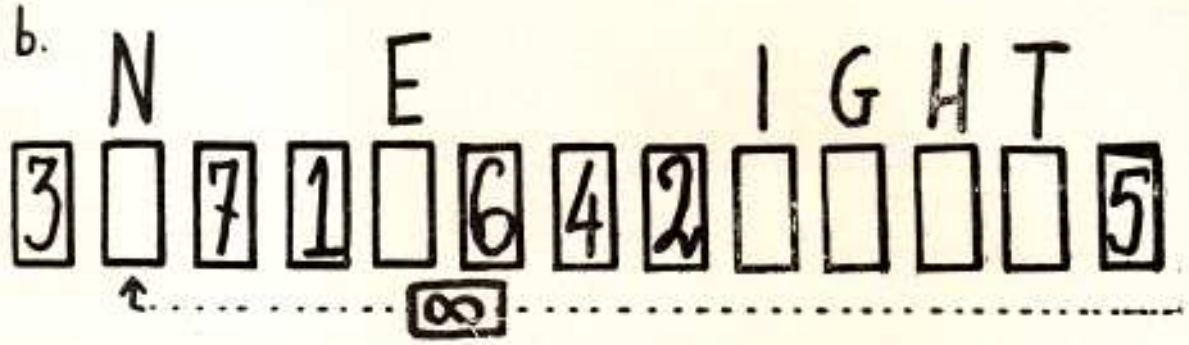
Note that places already filled are not being considered because these cards will have been discarded or put down in the correct positions as we proceed with the spelling game.

Step III

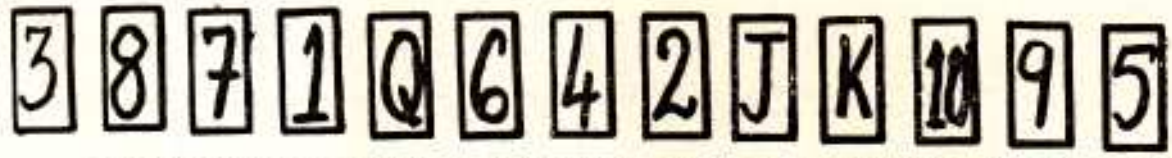
a.



b.



Continuing, thus, the following order is obtained.



In this scheme J — Jack; Q — Queen and K — King are spelt as such. Sometimes children like to associate Jack with eleven, Queen with twelve and King with thirteen. The arrangement in that case will be slightly different.

There was so much of excitement in the discovery that the arrangement was memorized by heart and the newly acquired skill displayed at every possible opportunity.

In two days time everyone was busy devising some way of memorizing the order. The numbers were associated with birthdays, marks in examinations, the number of fans in the library, number of houses on a street etc. It was a lot of fun. Ultimately what emerged was some interesting stories linking the cards in order.

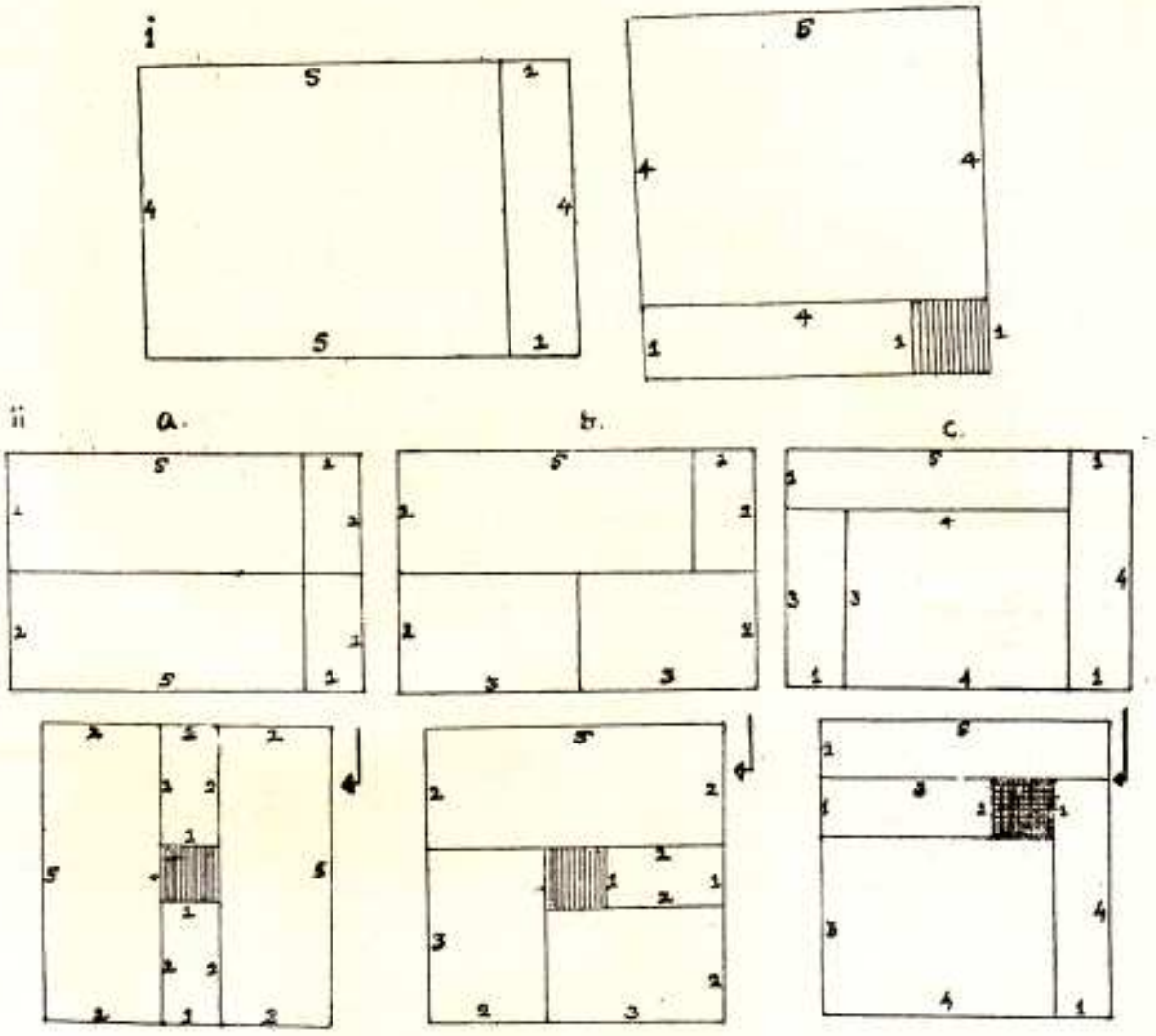
I give below the one which I use to memorize the order :—

"**3871** years ago there lived a queen 'Q' who celebrated her 64th birthday with a lot of pomp and show. There were '**2**' special guests at her party; Jack '**J**' and King '**K**'. Jack was **10** years old and the King was 95 years old".

Tripta Batra
Sardar Patel Vidyalaya
New Delhi.

SQUARES FROM RECTANGLES

Solutions



A Correction

In Maths Club Ideas-4 (November 1990 issue) please read the last formula as :

$$\frac{1}{3}\left[\frac{1}{2}\,n(+1)\quad(2n+1)\right]=\frac{n(n+1)\ (2n+1)}{6}$$

PUNCTUATION-III

Brakets :

(i) These are used in the following cases : to indicate an 'aside' or parenthesis. Though I disagree with your claim (in spite of its excellent presentation) I shall forward it to head Office

(ii) To repeat a sum of money in words. 'We agree to the sum of £65 00 (Sixty-five pounds) in settlement of this claim '

The Dash :

This may be used : (i) to show a break in a sentence 'A Dash is a useful piece of punctuation—providing it is not overdone—to show a break in a sentence '

(ii) Add emphasis to a statement by separating a final point from the rest of the sentence. 'Income Tax at its present rate discourages many from hard work—a fact which may account in part for the low productivity rate.'

Brings together a number of items, Textbooks, note-books, a pen, pencil, a ruler-all are part of a student's equipment'.

The Hyphen :

There is a growing and regrettable tendency for the hyphen to be omitted from such words as 'cooperative', 'preemptive', 'subcommittee' and so on Certainly where a prefix ends with the same letter as the stem word begins, a hyphen should be used. Thus, 'co-ordinate', 're-evaluate', etc.

But the hyphen also serves to separate words which do not happily come together to form a single group of letters. Perhaps it is time to *re-examine* its virtue, to *re-exercise* its function, and to *co-operate* with all those who feel that *self-consciousness* over such a small and harmless creature represents not so much a *hang-up* as a necessary *guide-line* for *prose-producing author-types*, and even for *finding critics*, who might otherwise regard this as an *over-emphasis* on *stop-insertion subject-matter (!!)*

Its further value lies in the typing of letters and documents in which the right-hand margin needs to be as militarily in line as the left-hand margin This involves line-end division of words, and is a matter of considerable controversy between teachers

However, the use of the hypen after a colon to introduce a list (:-) is quite unnecessary.

The Oblique (/) or 'Stroke'

This is used for separating the letters and/or numbers in Reference Numbers; e.g. Our Ref. GHJ/LD or Policy No. 2389546/4DR/7DR/78 or Filing reference 6/5/9,

It is not to be used for dates (3/10/79 as not only does this lead to confusion with filing references but, but also in America will be interpreted as 'the 10th of March' since, except for the military, the first figure is read as the *month*.

It indicates an alternative, e.g. and/or, he/she Mr./Mrs /Miss; or where one statement in a document has to be deleted, e g. 'I will/will not be able to attend'

There is an increasing tendency to replace the oblique in Account Numbers by the full-stop e g 345/78/779 is shown as 345.78.779,

The Question Mark :

This is used for asking a direct question, 'Will you tell me the way to York ?"

Is not necessary when politely suggesting an action to be taken, as in a letter. 'Would you please return the enclosed to me when you have completed it.'

The Exclamation Mark :

This expresses surprise or emotion of some kind

'What a shock it was !'

'Ouch !'

'You knew it all the time !'

It should not be used in reported speech (expcet in quotations); reports and summaries; or in any *very formal* letters or business documents. However, since it has an important emphatic role in punctuation. It may be used in more informal correspondence with considerable effect 'But it can be overdone !'

—Concluded

(From: know What I Mean ? People & Communication by G. A. Lord).

Do you know about . . . .

1. ZOO DIARY : Concept & Text by Anjana Bhagwati, Jayshree Mehta Published by : Educational Learning Material (ELM) C/o 3F, P K. House, Kavi Nandlal Marg, Ahmedabad 380 006
Price Rs. 10/-

This delightful 24-page booklet is well suited to children of the upper primary classes. It can be used in conjunction with a visit to the local zoo. Each page features one or two common animals, easily seen in most of our zoos. The exercises children to practise observation while at the zoo, draws their attention to different features of the animals' bodies, their life style and habitat. Mention is made of some threatened species and children are required to think before working out each page.

ज्ञान धारा–भाग १, २, ३

संपादक : अनुराधा, सरदार पटेल विद्यालय, नई दिल्ली
सन्मार्ग प्रकाशन, दिल्ली–११०००७

ज्ञानधारा के तीनों भागों का सम्पादन अनुराधा ने बड़े मनोयोग से किया है। इन पुस्तकों की तैयारी में छात्र–छात्राओं की रुचियों का ध्यान रखा गया है। सभी रचनाएं उन रचनाकारों की है जो अपने अपने क्षेत्र में स्व त्व पूर्ण स्थान रखते हैं। प्राय: देखने में आता है कि बच्चों की पुस्तकों को एक ही व्यक्ति लिख डालता है। ऐसी स्थिति में विषयों की विविधता और शैली की रोचकता नहीं आ पाती। अनुराधा ने परिश्रम से विविध प्रकार की सामग्री जुटाई हैं। बच्चों के मनोवैज्ञानिक स्तर का ध्यान रखा है। प्रश्नावली सरल और सुबोध है। ऐसी पुस्तकों से बच्चों का ज्ञान तो बढ़ेगा ही, साथ ही उनका मनोरंजन भी होगा। यह प्रस्तुति निश्चय ही स्वागत योग्य है। शिक्षा के क्षेत्र में यह प्रयास एक नये कदम के रूप में याद किया जायेगा।

ललित शुक्ल
शांतिद्वीप, ४ वाणी विहार
नई दिल्ली-११००५६

3. LOW COST TEACHING AIDS SOCIETY : The LCTAS aims basically to provide a scientific toy for every school going child, even in a small village. To reduce costs for the individual child and for small schools, the society has taken up the matter with the Department of Science and Technology, New Delhi. It has suggested that a trained entrepreneur who can invest up to Rs. 10,000/- or so can open a Toy Bank at the district level and serve the children of 25 to 30 schools. The bank can provide materials to such schools and lend material to children against a security and a low daily rental of about 2 paise per rupee price. The cost of about 110 items which are useful from class I to Classes 10+2, included in the set is about Rs. 2500/-. These are aimed at making clear some basic principles of science. As many as ten Toy Libraries are functioning in Pune through the efforts of one lady who runs a Science Club.

Schools might also be interested in these items for use as prizes. Individual prices range from Rs. 5/- to 25/-. Scientific greeting cards are also available.

For more details contact Shri J.C. Soni, 389/7 Dilkhush Bagh, G.T. Karnal Road, Delhi-110 033.

POLEMICS ON HOMEWORK

IS HOMEWORK NECESSARY ?

(A point of view arising out of a recent Panel Discussion of the same Question in Loreto House)

By 'homework' for the purpose of these reflections I understand school related academic work done by the child in the home under assignment from teachers. I myself have no recollections of having done any such homework in my primary school years; in the secondary school, if my memory is correct, we did have occasional assignments and/or specified homework-but never such as to take up more than an hour of one's evening.

But that was in Ireland, a generation ago. Here and now, things are very different and the question of homework has moved centre stage as an issue in the life of today's child. A very sick academic system has spawned this monstrous offspring which hounds every vestige of joy from the lives of our children. We burden their class hours with overloaded curricula; we burden their shoulders with overloaded schoolbags; and if that were not enough, we burden their leisure time with futile assignments which are at best occupation therapy and at worst destructive drudgery. Surely something is very wrong.

My plea is not for less homework, or for no homework; rather, it is a plea for sanity in our manner (whether we are parents or teachers) of handling homework.

In the final analysis the question is "Homework Necessary ?" Is no more arguable than the question, "Is Training Necessary (for an athlete) ?" Shakespeare said that knowledge hath a bloody entrance and I don't think there is any shortcut to bypass practice on our road to knowledge and learning. Homework is necessary. Though the sickness that plagues it is not. Besides suppressing homework will never cure the greater sickness in the system no more than scraping off a person's measles will purify his blood. Ultimately it is the sick educational system that has to be overhauled, but in the meantime we can ease the pain by addressing ourselves to the symptoms - more particularly to the question of homework.

Granted, then, that homework per se is necessary we must reframe our original question and ask: Is homework, as we see it today, necessary ? I feel that in this case the answer will be no. Monotonous, unproductive, unchallenging assignments have become the bane of a student's evening end weekends. There is little or no joy in completing them. Neither is there satisfaction in submitting them because in most cases they will neither be corrected nor assessed. Indeed, some will not even be returned to the students. Since many teachers regard the doing of the homework as an end in itself (almost as tourists regard doing London or Agra as a must on their package excursion). It is inevitable that students will enlist the help of parents, tutors or fellow - students to get the work done rather than to understand it. Very often a number of teachers working with a single class will pile on the assignments without reference to each other, or due regard for a student's time limitations.

What can we do to remove from homework the stigma of being a dirty word ? Let us learn from the modest flower : All we have to do is attend to the soil and the sowing and the flower just 'happens'. So too in the

classroom-if we attend to the atmosphere and environment, the learning (and the homework too) just happens. Given the right conditions and guidance in the classroom, the child will want to recapture joy outside it There is joy in mastery - in unravelling that problem, in making that discovery, in hunting down that piece of elusive information, in expressing oneself in prose or indeed any other medium. It is my experience that children are much more responsive when asked to wrestle with one defiant sum/problem than when they are told to 'do the next five questions' - none of which may present a challenge.

'In every job that must be done
There is an element of fun-
Find the fun, and snap ! the job's a game '

I heard recently of an incident which brings home a number of the implications of what we are discussing. It seems that one of the leading schools in the city has moved away from the traditional concept of homework and adopted a more challenging approach One particular child, after a week studying the leaf in the Biology class, was asked as part of the homework assignment to draw a chart comparing the work of the leaf to that of a factory. In the course of the week that child had no doubt been given all the relevant facts All that remained was the joyous task of mobilising the information in the form of a chart. The child was excited; the mother horrified, the tutor baffled Let's have more of such assignments.

Tom Sawyer captured the idea in a lighter vein when he said: Do not let going to school interfere with your education ' Even in spite of the awful exam system which circumscribes the very spirit of the child, we can broaden horizons for our students. We can move again in a world such as Mr Chips of the famous story was familiar with - a world where a youngster's awe and wonder and curiosity and adventurous spirit all get free reign By then the child will have enjoyed the learning process so much that school leaving will be just another exciting adventure and other arch in the sense that Tennyson speaks of when he says

Yet all experience is an arch
Wherethrough gleams the untravelled world
Whose margin fades forever and forever
When I move.

Bro Kevin Ward, St Joseph's College, Calcutta.

From a Parent's View Point

List of suggestions About Homework

1 The last 15 min of a period (twice a week) to be kept aside as an open house question answer session between the teacher and students about understand ng the particular lesson taught in clss.

This could alert the teacher for further reinforcement if necessary, benefit the children-who were previously absent, the slow ones will get a chance to learn again and be receptively enthusiastic and the brighter few can take over as :

a) peer leaders to teach b) make charts / project models and give suggestions for the structured homework—written or otherwise.

The whole exercise can be done as a sort of game-dividing the class according to their respective Houses, names, rows as they sit and make revision work a healthy competition amongst teamwork

2 There could be a 'pact' between the students and teacher that there will be no daily HW if the students' performance in class is quite satisfactory This will lead the average students to meet the challenge to be at par with their brilliant peer group in class

3. A weekly meeting between the class teacher and the subject teachers (middle school maybe) to come to a happy compromise with the child in mind

THE GOLDEN RULES ON HOMEWORK

The answer is "Yes !". The debatable part of the topic is more concerned with "What home work ?" and "Homework given by whom ?"

There are, to my mind, four broad classes of homework-givers :

(a) The Administrator, who records the giving of homework as an activity in the Teachers' Service Rule Book;

(b) The teacher, for a variety of reasons and in a variety of ways;

(c) The student, as a felt need for revision, exam preparation or knowledge;

(d) The parent, for 'marks' or euphemistically, the quest for excellence.

Whatever the home work given, it is obvious that terms like "drudgery", "work" and "necessary evil" are largely associated with the work imposed by Administrator or Parent. The student who plans his own home work will not be likely to impose hard work upon himself. The teacher is unlikely to create more work by prescribing tons of work for both the student and himself. Effective home work has to be designed, and for this a trained, committed teacher is probably the only one who can do the job. If a student's personal revision is carefully designed by the student himself, then it seems more then likely that this student is not the targeted beneficiary of the home work. Exit, from this argument, the student.

The teacher is thus faced with the task of giving the homework—task it is if the work is to have any benefit. Most important in the assigning of work is the defining of objectives.

Objectives can range from Completing the-Exercise to-satisfy-Syllabus-Maker to Enrichment programme - to - satisfy - Creative - Urges (regardless of the value of the lesson learnt).

Home work given as an extension of classwork is very effective provided the reinforcement of the drill-and-practice exercises is positive. A method wrongly learnt and done incorrectly as homework, twenty times, is almost impossible to dislodge and reteach later

Similarly, finding out research type exercises can be dangerous to the economically underprivileged student and, on the other hand, can result in over-involvement of the mother's creative art diploma and the mutilation of several National Geographics.

So, I propose that homework, already established as necessary, be modified bearing in mind the four golden rules of any successful training programme. For any programme to be a roaring success there should be VARIETY, CONTINUITY, PURPOSEFULNESS and FUN.

The Fun takes care of itself if you can handle the V.C.P. !!

Leslie D. Gama
St. Xavier's Collegiate School,
Calcutta

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